

2024-05-25: ID

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* Problem Sheet 1 *

Q1:

#include <stdio.h>

int main()

{

 while (1)

{

 int num1, num2, choice;

 float result;

 printf("choose an operation\n 1. Addition\n 2. Subtraction\n 3. Multiplication\n 4. Division\n 5. Exit\n");

 printf(" Enter your choice (1-5): \n");

 scanf("%d", &choice);

 if (choice == 5)

 { return 0; }

 printf(" Enter 2 numbers: \n");

 scanf("%d %d", &num1, &num2);

 switch (choice)

 { case 1:

 printf("%d + %d = %d", num1, num2, num1 + num2);

 printf("%d", num1 + num2);

 break;

①

continued in page 2

Q1 continued

case 2:

```
printf("%d", num1 - num2);  
break;
```

case 3:

```
printf("%d", num1 * num2);  
break;
```

case 4:

```
if (num2 == 0)
```

```
printf("error: division by zero isn't allowed");
```

else

```
printf("%f", (float) num1 / num2);
```

```
break
```

default:

```
printf("invalid choice\n");
```

}

}

}

Q2, 10:

⑩ #include <stdio.h>

```
void triangle(int a, int b, int c)
```

```
{ if (a == b && a == c)
```

```
    printf("equilateral triangle\n");
```

```
else if (a == b && a == c && b == c)
```

```
    printf("isosceles triangle.\n");
```

(2)

continued in page 3

Q2.10 continued

else ~~if~~

printf("acute triangle.\n");

}

int main()

{

int a,b,c;

scanf("%d%d%d", &a, &b, &c);

triangle(a,b,c);

}

Q2.5:

⑤ ~~#include < stdio.h >~~

float area(float b, float h) { return 0.5 * b * h; }

int main()

{ float base, h;

scanf("%f %f", &base, &h);

printf("%f", area(base, h));

}

* Q 2.6:

⑥ #include <stdio.h>

int maximum()

{ int max = 0, n;

For (int i=0; i<3; i++)

{ scanf("%d", &n);

if (n > max)

max = n;

}

return max;

}

int main()

{

printf("Enter 3 numbers : \n");

printf("%d", maximum());

}

* Q 2.7:

⑦ #include ~~grade(Float t)~~ <stdio.h>

Void grade(Float t)

{ if (t >= 90)

printf("A\n");

else if (t >= 70) printf("B");

(4)

continued in page 4

Q2.7 continued

```
elseIf (t>=50) printf("C");
else printf("F");
}

int main()
{
    int a, b, c;
    scanf("%d %d %d", &a, &b, &c);
    float t = (a+b+c)/3.0;
    grade(t);
}
```

Q2.8:

```
⑧ #include<stdio.h>
int even(int n)
{
    if(n%2==0) return 1;
    return 0;
}

int main()
{
    int a=0;
    scanf("%d", &a);
    if(even(a)) printf("even.\n");
    else printf("odd");
}
```

Q 2.9:

⑨ ~~#include <stdio.h>~~

```
Void compare(int a, int b)
{ if(a==b) printf("a=b");
else if(a>b) printf("a>b");
else if(a<b) printf("a<b");
```

}

```
int main()
```

```
{ int a, b;
```

```
scanf("%d %d", &a, &b);
```

```
compare(a, b);
```

```
}
```

Q 2.12:

⑫ ~~#include <stdio.h>~~

```
Void stars(int n)
```

```
{
```

```
for (int i = rows; i > 0; i--)
```

```
{ for (int j = 0; j < i; j++)
```

```
{ printf("*"); }
```

```
. printf("\n");
```

```
} }
```

Q2.12 continued

```
int main()
{ int a;
  scanf("%d", &a);
  Stars(a);
```

}

Q2.14:

(14) #include <stdio.h>

```
int sumcalc(int n)
{ if(n<0) return 0;
  return n*(n+1)/2;
}
```

```
int main()
```

```
{ int n, sum;
```

```
printf("enter a positive integer:");
```

```
scanf("%d", &n);
```

```
printf("sum = %d", sumcalc(n));
```

}

Q2.15:

(15) ~~#include <stdio.h>~~

```
int csum(int n)
{ int sum = 0, digit;
  while (n)
  { digit = n % 10;
    sum += digit;
    n /= 10;
  }
  return sum;
}
```

int main()

```
{ int num;
  printf("enter a num:");
  scanf("%d", &num);
  printf("%d", csum(num));
```

}

Q 4:

```
#include <stdio.h>
int nsum(int n)
{ if(n==1) return 1;
  return n + nsum(n-1);
```

}

```
int main()
```

{

```
  int n=0;
```

```
  scanf("%d", &n);
```

```
  printf(" sum is %d", nsum(n));
```

}

Q 5:

```
#include <stdio.h>
```

```
int isprime(int n,int i)
```

```
{ if(n<=1) return 0;
```

```
  if(i==1) return 1;
```

```
  if(n%i==0) return 0;
```

```
  return isprime(n, i-1);
```

}

```
int main()
```

{ int num;

```
  scanf("%d", &num);
```

```
  if(isprime(num, num/2)) printf("prime");
```

```
  else printf(" not prime");
```

}

Q6:

```
#include <stdio.h>
```

```
void reversestring(char str[], int start, int end)
```

```
{ IF (start >= end) return;
```

```
char temp = str[start];
```

```
str[start] = str[end];
```

```
str[end] = temp; end
```

```
reversestring(str, start + 1, start - 1);
```

```
}
```

```
int main()
```

```
{ char str[100];
```

```
scanf("%s", str);
```

```
int length = strlen(str);
```

```
reversestring(str, 0, length - 1);
```

```
printf("reversed string = %s", str);
```

```
}
```